Distribution & Logistics II: Management

Primary Career Cluster:	Transportation, Distribution & Logistics
Consultant:	Rachel Allen, (615) 532-2835, Rachel.Allen@tn.gov
Course Code(s):	6024
Prerequisite(s):	*Distribution & Logistics I (6072)*
Credit:	1
Grade Level:	11-12
Graduation Requirements:	This course satisfies one of three credits required for an elective focus when taken in conjunction with other Transportation courses.
Programs of Study and Sequence:	This is the third and final course in the *Distribution & Logistics* program of study.
Necessary Equipment:	None
Aligned Student Organization(s):	Skills USA: http://www.tnskillsusa.com Brandon Hudson, (615) 532-2804, Brandon.Hudson@tn.gov
Coordinating Work-Based Learning:	Teachers who hold an active WBL certificate may offer placement for credit when the requirements of the state board's WBL Framework and the Department's WBL Policy Guide are met. For information, visit http://tn.gov/education/cte/work_based_learning.shtml.
Available Student Industry Certifications:	None
Dual Credit or Dual Enrollment Opportunities:	There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement.
Teacher Endorsement(s):	503, 774
Required Teacher Certifications/Training:	None
Teacher Resources:	http://www.tn.gov/education/cte/TransportationDistributionLogistics.shtml

Course Description

Distribution & Logistics II: Management prepares students for a capstone learning experience in logistics, planning, and management systems. A range of business tasks will be undertaken to support the operation of supply chain processes including coordinating and controlling the order cycle and associated information systems. Through exposure to crucial business activities such as project management, analyzing logistical problems, and producing new solutions, students will acquire

advanced skills related to business professionalism, ethics, policies, and communication. Upon completion of this course, a proficient student will be prepared for further education and careers in the distribution and logistics industry. Standards in this course are aligned with Tennessee State Standards for English Language Arts & Literacy in Technical Subjects and Tennessee State Standards in Mathematics.*

Work-Based Learning Framework

Optional internship** standards outlined below may take the form of work-based learning (WBL) opportunities (such as internships, cooperative education, service learning, and job shadowing) or industry-driven project-based learning. These experiences must comply with the Work-Based Learning Framework guidelines established in SBE High School Policy 2.103. As such, this course must be taught by a teacher with an active WBL Certificate issued by the Tennessee Department of Education and follow policies outlined in the Work-Based Learning Policy Guide available online at http://www.tn.gov/education/cte/work_based_learning.shtml. The Tennessee Department of Education provides a Personalized Learning Plan template to ensure compliance with the Work-Based Learning Framework, state and federal Child Labor Law, and Tennessee Department of Education policies, which must be used for students participating in WBL opportunities.

Program of Study Application

This is the third and final course in the *Distribution & Logistics* program of study. For more information on the benefits and requirements of implementing this program in full, please visit the Transportation, Distribution & Logistics website at http://www.tn.gov/education/cte/TransportationDistributionLogistics.shtml.

Course Standards

Occupational Safety

1) Create a safety procedures manual for new employees working in a warehouse facility. Outline in the manual the personal and environmental safety practices associated with the appropriate handling and storage methods of materials in accordance with local, state, and federal safety and environmental regulations.
    a. Include employee responsibilities and protocols for adhering to regulations, and Occupational Safety & Health Administration (OSHA) policies regarding reporting of accidents and observed hazards, and regarding emergency response procedures.
    b. Include information on how to interpret Material Safety Data Sheets (MSDS) to determine any hazards related to materials handled.
    c. Include the appropriate signs and symbols that must be used to identify hazardous materials within warehouses and during transportation of the materials.

    (TN Reading 3, 4; TN Writing 4)

2) Prepare and deliver a safety demonstration on the use of a specific piece of safety equipment or personal protective equipment (PPE).

Communications and Professionalism

3) Practice effective verbal, nonverbal, written, and electronic communication skills for working with customers, employees, dispatchers, wholesalers, and retailers. Demonstrate the ability to listen attentively, speak courteously and respectfully, discuss client ideas/vision, resolve conflicts, and respond to customer objections or complaints to the customer's satisfaction. (TN Writing 4)

4) Collect Codes of Ethics from various transportation, distribution, and logistics-related professional organizations and/or companies, and examine areas of commonality. Analyze what these statements say about the work culture at a particular organization, and identify company values that resonate with one's own. Discuss how one would look for evidence of positive values when conducting a job search. Synthesize principles from the codes investigated to create a personal code of ethics, to be included in a career portfolio compiled throughout the course. (TN Reading 1, 2, 4, 5, 6, 9; TN Writing 4, 8, 9)

5) Research job descriptions, career information, and online job boards to identify desirable employability skills and character traits for professionals working in the area of transportation, distribution, and logistics. Compile a class list of those skills and attributes. For each item on the class list, define the characteristic, state why it is important for people working in the field, and list at least two ways to build that skill. Possible skills include:
    a. Collaboration
    b. Honesty
    c. Reliability
    d. Communication
    e. Responsibility
    f. Problem-solving
    g. Ability to work under pressure

    (TN Reading 1, 4; TN Writing 4, 8)

Distribution and Logistics Technology

6) Demonstrate proficiency with Microsoft Office programs by using them to complete class assignments including writing papers, making presentations, solving problems, keeping records, and managing data. (TN Writing 6)

7) Research the different applications of computers and programmable controllers in managing distribution and logistics operations. Find examples of the software and technology used for those applications. Create a catalog sorted by type of application that includes the following:
    a. A generic description of the purpose of each type of software/technology included. Possible categories to include are electronic commerce (e-commerce); barcode software; enterprise resource planning (ERP); distribution resource planning (DRP); and electronic data interchange (EDI).
    b. An entry for each specific software/technology that falls in the application category, including graphics, product description, key features, best uses, and a link to the product website.

    (TN Reading 2, 4, 7; TN Writing 2, 4, 6, 7)

8) Write an explanatory paper describing the benefits of having all of an organization's software programs integrated so that information is only entered once. Cite evidence from case studies, articles, and other sources. (TN Reading 1, 4, 7; TN Writing 2, 4, 7, 8)

Warehousing Management

Note: For the following standards, teachers are encouraged to leverage relationships with local businesses to bring in representatives for class discussions and/or supply examples of management processes and other relevant documents.

9) Gather information from field visits, texts, and personal communications with business representatives to create layout plans for processing incoming and outgoing, cross-docking, and storage of products. Provide a sketch of the shipping and receiving area and write out a standard operating procedure for each. (TN Reading 1, 4, 7)

10) Create a flow chart for the processing of incoming goods and materials using standardized industry protocols and procedures. Include processes for dealing with damaged, incorrect, and incomplete orders. (TN Reading 3, 7; TN Writing 4)

11) Simulate the work of a warehouse manager or logistician by planning for the shipment of a product. Given a set of constraints, such as a specified timetable, destination, quantity, or other factor, determine the number of pallets needed and assign dock doors to accommodate the appropriate number of loads. (TN Reading 3, 4; TN Math N-Q, A-CED)

12) Develop a written profile of how a local business coordinates and controls the order cycle and associated information systems of scheduling, cost analysis, documentation confirmation, packing lists, MSDS, product seals, packaging types, packaging labels, and routing issues. Include a description of the performance metrics used to monitor the quality, quantity, cost, and efficiency of the movement and storage of goods. (TN Writing 2, 4)

13) Apply skills learned in Distribution & Logistics courses to analyze a case study in which the supply chain for a particular product or company was disrupted. In a written paper or presentation, describe what went wrong and how management addressed the problem. Discuss whether or not the issue was resolved, and the impact it had on either the supply chain or the industry as a whole. For example, analyze the 2002 Long Beach Port Strike and demonstrate through graphic representations and narrative writing how the strike impacted a range of manufacturers, retailers, and consumers in multiple locations. (TN Reading 2, 9; TN Writing 2, 4, 7, 9)

Capstone Project

14) Plan a distribution center. In a written plan complete with accompanying graphic illustrations, charts, and/or tables, outline the following:
    a. Select a location for the center and indicate on a map the service area for the distribution center.
    b. Using online mapping applications, identify businesses within the area that could be potential customers.

c. Determine the type of distribution center to build based on potential customers—for example, a retail distribution center, a service parts distribution center, a catalog or e-commerce distribution center, or a 3PL (3rd party) distribution center.
d. Include a brief description of how each of the following operations will be handled at the distribution center: dock operations, receiving operations, storage operations, picking operations, packaging operations, shipping operations, processing returns.
e. Evaluate possible material handling and storage equipment for use in the distribution center.
f. Investigate the modes of transportation to be used to ship materials and develop guidelines for when each should be used. Consider truck, rail, air transport, maritime transport, intermodal, and outsourcing as methods of moving product.
g. Develop clearly defined and measurable metrics to assess progress, and supply sample cost and revenue projections based on specified inventory, overhead, variable costs, and other inputs.

(TN Reading 1, 4, 7; TN Writing 1, 2, 4, 5, 6, 8, 9; TN Math N-Q, A-CED, F-IF, F-BF)

Career Portfolio

15) Compile important artifacts that represent professional and personal skill attainment to create a career portfolio. Develop a plan to distribute the electronic portfolio as part of a career job search and/or admission to a postsecondary program. Portfolio items may include:
    - Attainment of technical skill competencies, licensures or certifications, recognitions, awards, and scholarships
    - Documentation of extended learning experiences, such as community service and professional organizations, or internship
    - Abstract of technical competencies mastered during the practicum
    - Resume
    - Examples of best work
    - Other artifacts compiled in previous courses

    (TN Reading 1, 8; TN Writing 4, 9)

Internship Option**

16) Participate in a work-based learning internship experience to develop, practice, and demonstrate skills outlined in the standards above and in previous courses in this program of study. An internship should follow current Tennessee work-based learning guidelines as appropriate.

17) Create and continually update a personal journal to document internship activities. Draw connections between the experience and course content, thoughtfully reflecting on:
    a. Acquired leadership skills
    b. Problem-solving techniques and decision-making skills
    c. Team member participation in a learning environment
    d. Personal career development

    (TN Writing 2, 4)

18) Upon conclusion of the internship, write an informative essay summarizing the internship experience and next steps for personal and professional growth. Produce a technology-enhanced class presentation showcasing highlights, challenges, and lessons learned from the internship. (TN Writing 2, 4, 6)

** Although a hands-on experience in work-based learning (WBL) is desired, it is recognized that not all students can be placed in a working establishment. Comparable placement in a school-based/district-based enterprise may be substituted if available.

Standards Alignment Notes

*References to other standards include:

- TN Reading: Tennessee State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects; Reading Standards for Literacy in Science and Technical Subjects 6-12; Grades 11-12 Students (page 62).
    - Note: While not directly aligned to one specific standard, students who are engaging in activities outlined above should be able to also demonstrate fluency in Standard 10 at the conclusion of the course.
- TN Writing: Tennessee State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects; Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6-12; Grades 11-12 Students (pages 64-66).
    - Note: While not directly aligned to one specific standard, students who are engaging in activities outlined above should be able to also demonstrate fluency in Standards 3 and 10 at the conclusion of the course.
- TN Math: Tennessee State Standards for Mathematics: Math Standards for High School: Number and Quantity, Algebra, Functions (pages 58-83).
    - Note: The standards in this course are not meant to teach mathematical concepts. However, the concepts referenced above may provide teachers with opportunities to collaborate with mathematics educators to design project based activities or collaborate on lesson planning. Students who are engaging in activities listed above should be able to demonstrate quantitative, algebraic, and functional reasoning as applied to specific technical concepts. In addition, students will have the opportunity to practice the habits of mind as described in the eight Standards for Mathematical Practice.
- P21: Partnership for 21st Century Skills Framework for 21st Century Learning
    - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.